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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: JUN 1 ? 1995

SUBJECT: ON-SCENE COORDINATOR'S REPORT - Removal Action at the Enterprise Oil Site, Detroit, Wayne County, Michigan (Site ID #PG)

FROM: Rick Karl, Chief
Emergency and Enforcement Response Branch, HSE-5J

TO: John E. Riley, Acting Director
Emergency Response Division

THRU: William Muno, Director
Waste Management Division

Attached please find the On-Scene Coordinator's Report for the removal action conducted at the Enterprise Oil site located in Detroit, Wayne County, Michigan. The report follows the format outlined in the National Contingency Plan (NCP), Section 300.165. This removal began on June 15, 1992, and was completed on December 4, 1992. The OSC for this removal action was Peter F. Guria.

The site posed an immediate threat to human health and the environment. The action was taken to mitigate threats posed by uncontrolled releases of waste oil and the presence of unsecured drums containing volatile organic compounds, flammable liquids, ~~and~~ tanks of waste oil containing hazardous substances.

Costs under control of the On-Scene Coordinator totaled \$ 1,108.318.55, of which \$ 935,951.16 were for the Emergency Response Cleanup Services (ERCS) Contractor.

Any indication in this OSC Report of specific costs incurred at the site is only an approximation, subject to audit and final definitization by U.S. EPA. The OSC Report is not a final reconciliation of the costs associated with a particular site.

Portions of the OSC Report appendices may contain confidential business or enforcement-sensitive information and must be reviewed by the Office of Regional Counsel prior to release to the public.

The site is not on the National Priorities List.

Attachment

cc: Alan Howard
Michigan Department of Natural Resources, w/OSC Report
T. Johnson, U.S EPA, OERR, 5202-G, w/OSC Report

ON-SCENE COORDINATOR'S REPORT

CERCLA REMOVAL ACTION

ENTERPRISE OIL SITE

DETROIT, MICHIGAN

SITE ID # PG

DELIVERY ORDER NO. 7460-05-232

Removal Dates: June 15, 1992 - December 4, 1992

Emergency and Enforcement Response Branch
Office of Superfund
Waste Management Division
Region V
United States Environmental Protection Agency

EXECUTIVE SUMMARY

Site/Location: Enterprise Oil, Detroit, Wayne County, Michigan
Removal Dates: June 15, 1992 - December 4, 1992

INCIDENT DESCRIPTION:

This site was an inactive petroleum distribution/waste oil storage and transfer facility located in Detroit, Michigan.

The removal action was taken to mitigate the threats posed to human health and the environment by the presence of volatile organic liquids, flammable liquids, and waste oil containing hazardous substances under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). These materials posed threats from the release of waste oil, contained in aboveground and underground tanks, resulting in exposure to nearby human and animal populations. The migration of hazardous substances in on-site soil also posed a direct contact threat. Additional threats of fire or explosion were posed by the deteriorating drums and tanks.

ACTIONS TAKEN:

U.S. EPA began a removal on June 15, 1992. The following emergency removal activities were performed: 1) the site was secured and the perimeter fenceline repaired, restricting access to unauthorized persons; 2) site wastes were characterized by sampling all tanks, drums, and small containers; 3) compatibility groups were developed and waste bulked for disposal; 4) on-site tanks were dismantled, decontaminated, and shipped off-site for reclamation; and 5) an extent-of-contamination study was conducted to determine the concentration and volume of contaminated soil at the site.

Approximately 256,500 gallons of waste water, 80,600 gallons of waste oil, and 8,141 gallons of waste oil residual/sludge were shipped for off-site treatment and disposal between August and December 1992. An extent-of-contamination study was conducted in August 1992, confirming that hydrocarbon contamination was present in surface and subsurface on-site soils. All actions taken were consistent with the National Contingency Plan.

The removal was completed on December 4, 1992, at an estimated cost under control of the OSC of $ 1,108,318.55, of which $ 935,951.16 was for the Emergency Response Cleanup Services (ERCS) contractor. The On-Scene Coordinator was Peter F. Guria.

14 JUNE 1995

Peter F. Guria, On-Scene Coordinator — Date
Emergency and Enforcement Response Branch
United States Environmental Protection Agency
Region V

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Emergency and Enforcement Response Branch
Office of Superfund, U.S. EPA, Region V

OSC REPORT STANDARD APPENDICES LIST*

Site Name: Enterprise Oil, Detroit, Wayne County, Michigan

Site ID #: PG Delivery Order #: 7460-05-232

ID#	1.0 OPERATIONAL FILES
1-A	Action Memorandum
1-B	POLREPs
1-C	Site Entry/Exit Log
1-D	Hot Zone Entry/Exit Log
1-E	Site Safety Plan
1-F	City Of Detroit Fire Marshal Correspondence
1-G	Site Logs
1-H	Community Relations Plan/Newspaper Articles
1-I	Daily Work Orders
1-J	Air Monitoring Plan and Data
1-K	Site Maps
1-L	Site Contacts/Business Cards
1-M	Written Correspondence
1-N	Phone Correspondence
1-O	Phone Logs
1-P	Security Guard Reports
1-Q	Miscellaneous
1-R	Site Photo/Video Documentation
1-S	Time Line Of Removal Activities
1-T	CERCLIS
1-U	Background Information
1-V	Title Search Information
1-W	Notice Letters and 104(e) Information Requests
1-X	Administrative Order
1-Y	Department Of Justice Bankruptcy Proceedings

* Portions of these OSC Report Appendices may contain confidential business information for enforcement-sensitive information and must be reviewed by the Office of Regional Counsel prior to release to the public.

* Note that certain files for this site are maintained elsewhere by EERB; these appendices are those files maintained by the OSC during the removal action.

OSC REPORT STANDARD APPENDICES LIST (CONT'D.)

ID#		
	2.0	FINANCIAL FILES
2-A		Delivery Orders/Procurement Requests
2-B		Technical Directive Documents
2-C		Daily Cost Reporting, ERCS 1900-55
2-D		Daily Cost Reporting, GOVERNMENT 1900-55
2-E		Await Bill Tracking Log
2-F		Equipment Tracking Log
2-G		Field Purchase Receipt Log
2-H		PPE Expendable Log
2-I		Incident Obligation Log
2-J		Contractor Bid Sheets
2-K		Contractor Invoices
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3-F		Tank Sampling and Hazcat Data
3-G		Preliminary Soil Sampling Plan and Data
3-H		UST Excavation Analytical Results
3-I		Chain of Custody
3-J		Extent-of-Contamination (EOC) Sampling Plan
3-J-1		EOC Field Data Sheets/Container Information
3-J-2		EOC On-Site Field Screening Data Logs
3-J-3		EOC Analytical Results
3-K		Disposal Information
3-L		Waste Stream Analytical Results
3-M		Waste Profile Forms
3-N		Manifests
3-O		Other Waste Shipments
3-P		Waste Disposal Summary
3-Q		Bioremediation Information
3-Q-1		Bioremediation Request for Proposal/ Subcontractor Workplan
	4.0	PRP ACTIVITY FILES
4-A		PRP Workplan
4-B		Clean up Contractor Daily Activities
4-C		Sampling Information & Analytical Results
4-D		Waste Shipment Manifests
4-E		TAT Contractor Oversight Support

1.0 SUMMARY OF EVENTS

1.1 Location/Initial Situation

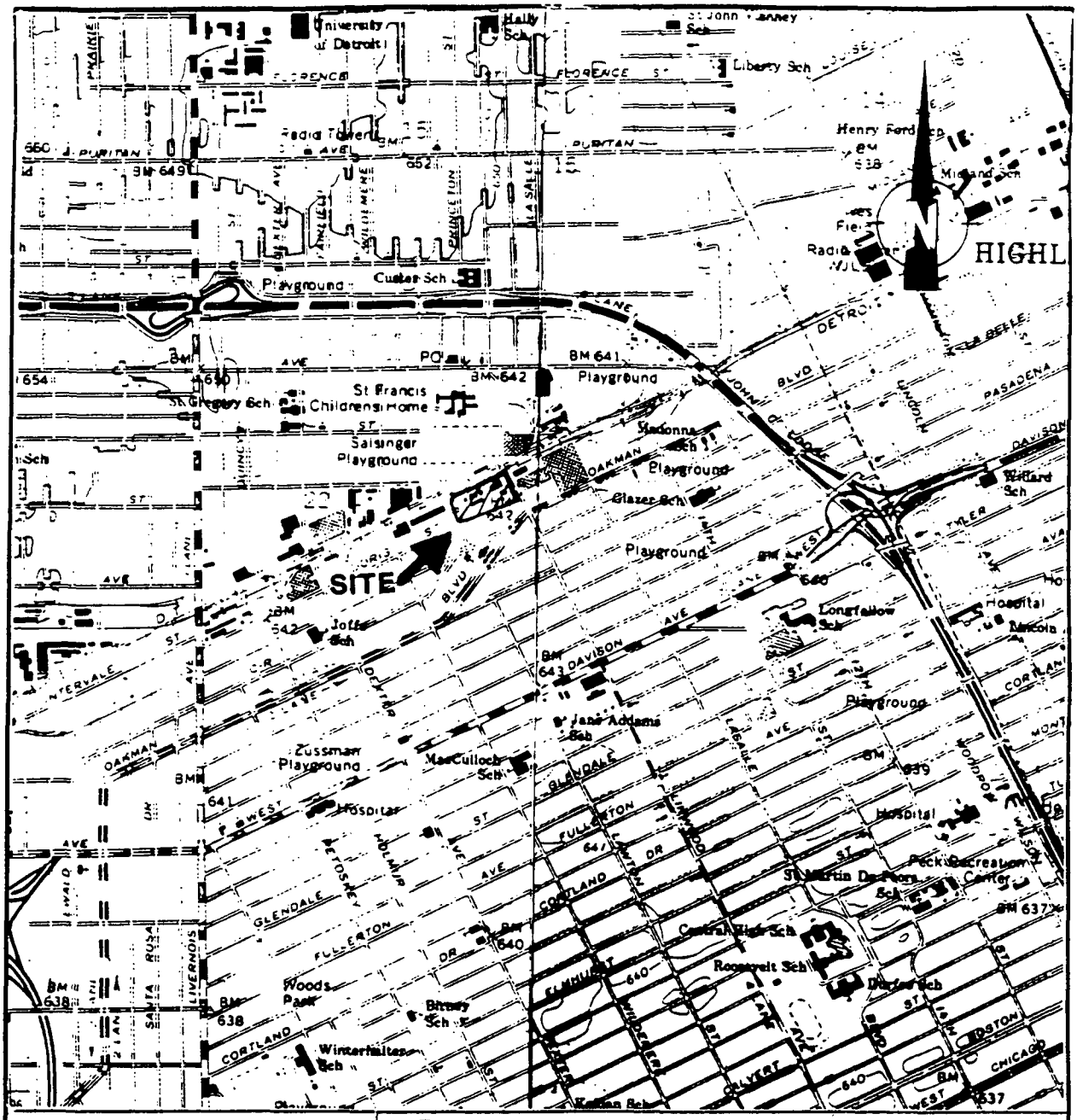
The Enterprise Oil (EO) site is an inactive petroleum distribution/waste oil storage facility located at 14445 Linwood Avenue, Detroit, Wayne County, Michigan. The site is situated in a mixed residential/commercial/industrial area of northwest Detroit with Linwood Avenue defining the site's east boundary (Figure 1). The site is bordered to the west by Lawton Avenue, to north by the Conrail Railroad tracks, and to the south by Doris Street. An elementary school, playground, and a home for mentally handicapped and orphaned children are located 1/2 mile to the north. The nearest residence is less than 60 feet south of the site. A chainlink fence surrounds the site and separates the south perimeter from residential homes which are located on Doris Street.

The EO site encompasses approximately 3.1 acres and consists of an office building with loading dock, a maintenance building and laboratory, and a garage (Figure 2). Two tank farms with a combined aboveground storage capacity of 1.3 million gallons were located on-site. The two tank farms contained a total of 16 aboveground storage tanks (ASTs) which were utilized to store waste oil at the site. Tank farm # 1 contained four 250,000-gallon ASTs, while tank farm # 2 contained twelve 20,000-gallon ASTs. Both tank farms had secondary containment consisting of concrete containment walls and earthen floors. An additional thriteen underground storage tanks (USTs) with a combined storage capacity of 152,000 gallons were also utilized for product storage at the site. Two pump stations located in the central portion of the facility were utilized during operations.

Site topography is relatively flat. The closest natural body of water is the Detroit River, which is located approximately 3.5 miles to the southeast and flows south toward Lake Erie. Residential drinking water is provided by the City of Detroit, via intakes on the Detroit River.

1.2 Previous Actions/Site History

The EO site initially operated from 1956 through 1968 as a petroleum distribution facility, storing and transferring kerosene, gasoline, fuel oil, and jet fuel for commercial and private use. Between 1968 little commercial activity took place and the facility was available for sale. Sometime in 1975 the EO facility began receiving and storing waste oil from the automotive industry. The facility was sold to Martin J. Pierce and Fred Levine in 1988, and Mr. Levine sold his share to the Motor Oils Refining Company, Inc.(MORECO), in August 1989. The facility continued operation under the name Enterprise Oil using

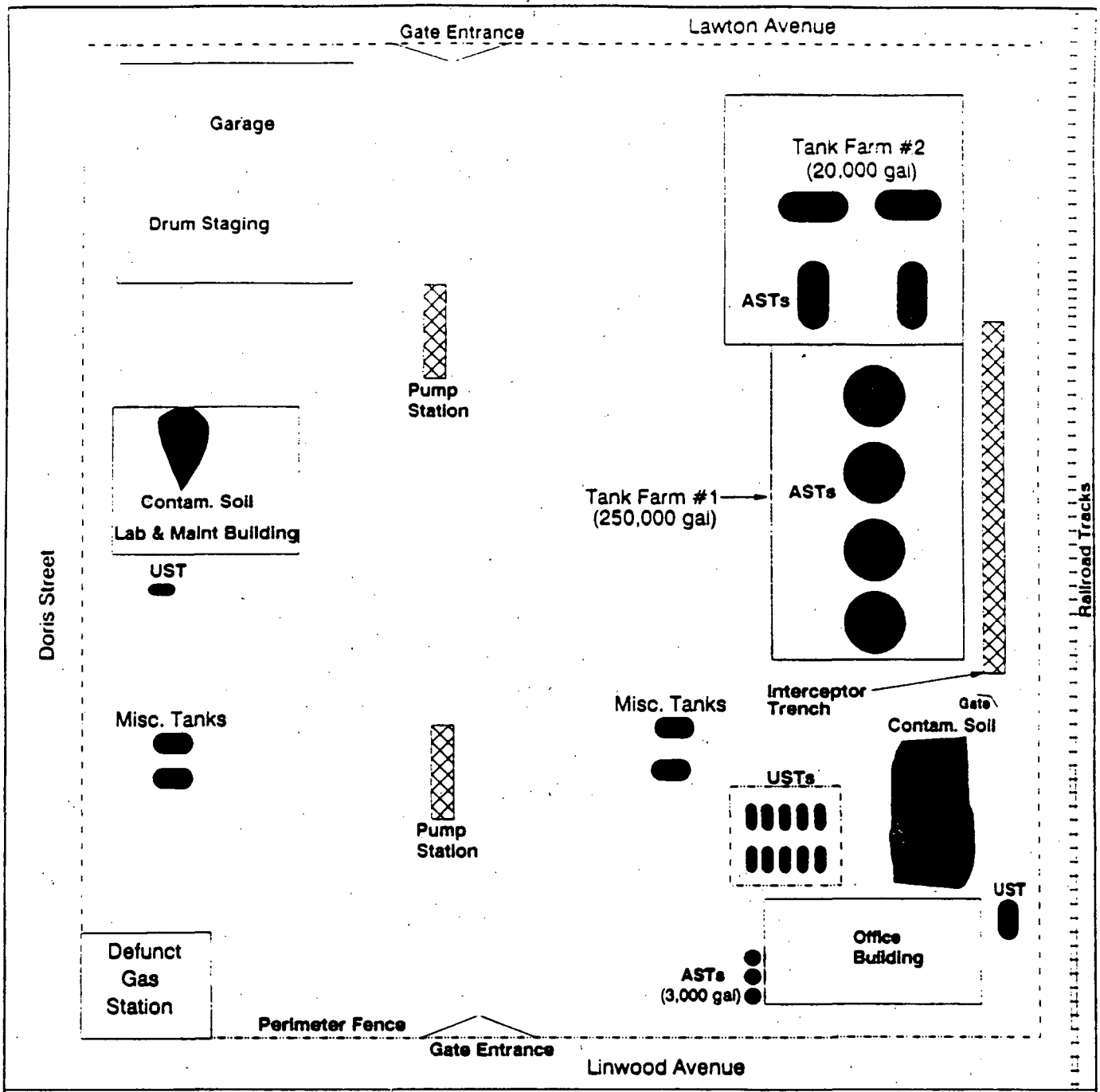


QUADRANGLE LOCATION

EPA U.S. EPA REGION V

EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

TITLE: SITE LOCATION MAP	FIGURE #: 1
SITE: ENTERPRISE OIL SITE	SITE ID: PG
CITY: DETROIT STATE: MICHIGAN	SCALE: 1:24,000
SOURCE: USGS TOPOGRAPHIC MAP ROYAL OAK QUADRANGLE	DATE: REVISED:



EPA U.S. EPA REGION V

EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

TITLE: SITE FEATURES MAP	FIGURE #: 2
SITE: ENTERPRISE OIL SITE	SITE #: PG
CITY: DETROIT STATE: MICHIGAN	SCALE: NOT TO SCALE
SOURCE: ECOLOGY & ENVIRONMENT, INC	DATE: 11/2/93

the on-site tanks for storage of waste oil from the automotive and railroad industries. MORECO ceased operations at the site in December 1988. A fence surrounding the property was left as the only means of security. On June 3, 1991, MORECO filed for bankruptcy protection under Chapter 11 of the United States (U.S.) Federal Bankruptcy Code.

Several releases of waste oil from the ASTs occurred between April 1990 and July 1991, reportedly caused by vandalism. In April 1990, approximately 200 gallons of waste oil were released from an AST. The Michigan Department of Natural Resources (MDNR) responded to the incident and reported that the spill was confined to the tank farm #1 containment area (Figure 2). The Detroit Fire Department (DFD) also responded to reports of several incidents of vandalism at the site. A second release occurred in July 1991, reportedly when vandals removed the brass valves connected to the 250,000 gallons ASTs. Waste oil contained in the ASTs flowed into the concrete containment structure surrounding tank farm #1, seeped under the containment wall, and flowed under the Conrail Railroad tracks along the northern boundary of the site. The migration of the waste oil was confined to an area of approximately 400 feet by 60 feet along the Conrail tracks.

The DFD notified the Detroit Department of Community and Industrial Hygiene (DCIH) of these incidents. The DCIH in turn informed MDNR through the Environmental Response Division's Pollution Emergency Alert System (PEAS). MDNR conducted a site inspection on July 25 through 26, 1991, which confirmed waste oil had accumulated within the containment structure. On July 30, 1991, MDNR requested MORECO under the Michigan Environmental Response Act, Public Act 1982, and under Section 10(a) of Act 307 (MERA), to undertake and complete removal activities at the site within 90 days. MORECO contracted M.L. Ashbury, Inc. to conduct removal activities at the site. Approximately 45,000 gallons of waste oil were pumped from the concrete containment structure and shipped to a local oil recycling facility.

On August 21, 1991, DCIH requested immediate spill response actions at the site from the United States Environmental Protection Agency (U.S. EPA) Emergency and Enforcement Response Branch (EERB), Section 1, Grosse Ile, Michigan. On September 6, 1991, the Technical Assistance Team (TAT) conducted a site assessment of the EO site to document site conditions and evaluate the threat to human health and the environment posed by the presence of uncontrolled waste oil and hazardous substances. The site assessment report, dated November 19, 1991, described site conditions and observations made by the TAT during the assessment (see Appendix 3-A). Observations by the TAT upon arriving at the site concluded that the site was unsecured and easily accessible through gates located on the east, west, and north of the site. Four horizontal 20,000-gallon tanks which

appeared to be empty were scattered on-site. In addition, two tank farms, encompassing a total of 16 ASTs with a combined storage capacity of 1.3 million gallons, were noted. Tank farm #1 contained four vertical 250,000-gallon ASTs, and tank farm #2 contained twelve horizontal 20,000-gallon ASTS (Figure 2). Pooled oil and stained soil were visible in the tank farm #1 containment area and in the areas where waste oil from the July 1991 release had migrated off site. Stained soil and standing oil on the north side of the tank farm #1 containment wall indicated that the release had migrated under the Conrail Railroad tracks ballast and flowed into a ditch to the north of the Conrail tracks. This area comprised approximately 24,000 square feet. The TAT further investigated site topography in relation to on-site sewers and nearby commercial and residential areas that could potentially have been impacted by the migration of contaminants. No further migration was documented.

Between September 9 and 11, 1991, the TAT returned to the site accompanied by OSCs Robert Bowlus and Pete Guria to further investigate site conditions. The TAT completed sampling activities, which included the collection of one soil sample from a visibly stained area and the collection of three liquid samples from ponded oil. All samples were submitted to an off-site commercial laboratory for polychlorinated biphenyl (PCB) analysis. Analytical results revealed levels were below the 10 parts-per-million (ppm) detection limit for liquid samples and the 5 ppm detection limit for soil. All sampling was conducted based on sampling plan locations (see Appendix 3-A, TAT SA Report, November 1991, Figure 3). The TAT observed several unlabeled drums in various locations throughout the site, many on their sides and apparently leaking. Additional sampling, which included the collection of a total of five drum samples, two soil samples, and one sample of potential asbestos-containing material, was completed. Air monitoring was conducted by the TAT during all sampling activities utilizing a combustible gas indicator (CGI), organic vapor analyzer (OVA), and a photo-ionization detector (HNu). HNu readings obtained during drum sampling ranged between 1 and 440 units above background. Analytical results from drum samples revealed elevated levels of the volatile organic compounds naphthalene (2,700 ppm), xylene (2,200 ppm), and ethylbenzene (930 ppm).

During site assessment activities conducted bewteen September 6 and 18, 1991, analytical results of liquid, solid, and soil samples collected from drums, tanks, and affected spill areas revealed drums with flash points ranging between 70° F and 85° F, the presence of heavy metals such as arsenic, chromium, cadmium, lead, thallium, zinc, and volatile organic compounds such as benzene, xylene, methylene chloride, and methyl naphthalene. Additional analytical results of samples collected from the waste oil that was released from the facility's storage tanks revealed levels of volatile organic compounds such as benzene, chloroform,

methyl ethyl ketone, tetrachloroethene, and trichloroethene above concentrations normally found in petroleum fractions. In addition, the concentrations of benzene, tetrachloroethene and trichloroethene exceeded the TCLP regulatory limits for those substances. Chloroform, methyl ethyl ketone, tetrachloroethene and trichloroethene are primarily chemical solvents used in metal degreasing operations. Validated analytical results are summarized in Appendix D of the site assessment report dated November 1991 (See Appendix 3-A).

Upon completion of the site assessment, U.S. EPA requested MORECO take immediate action to clean up the site. On October 2, 1991, Lunsford and Associates (Lunsford) of East Chicago, Indiana, contracted by MORECO, initiated cleanup activities. However, removal activities ceased on October 25, 1991, as requested by the OSC, until Lunsford developed and implemented a site health and safety plan. A site safety plan was completed on November 18, 1991, and MORECO cleanup efforts resumed on December 12, 1991. The MORECO funded removal action continued until February 28, 1992, when MORECO could no longer fund cleanup activities. A letter report submitted to U.S. EPA by the TAT and dated June 4, 1992, outlines in detail MORECO removal activities completed between October 1991 and February 1992 (See Appendix 3-B).

In October 1991, Lunsford initiated cleanup operations by securing the site. The contents of several of the on-site ASTs and USTs were pumped and shipped off-site to a MORECO facility in McCook, Illinois. The TAT conducted sampling to assist the cleanup contractor with consolidation of liquids contained in the USTs. Prior to demobilization, MORECO removed eight 20,000-gallon ASTs from the site as well as miscellaneous drums. However, four of the 20,000-gallon horizontal tanks contained in tank farm #2 were not pumped and were left at the site (Figure 2). The four 250,000-gallon ASTs and the USTs which had been pumped, were also left on-site. Conrail removed a section of railroad tracks to facilitate the excavation of contaminated soil. An interceptor trench was constructed to prevent further off-site migration of waste oil from tank farm #1.

U.S. EPA issued an Unilateral Administrative Order (UAO) (see Appendix 1-X) on December 26, 1991, requiring MORECO to conduct more extensive cleanup actions at the EO site. U.S. EPA took over removal actions at the site when it was determined that MORECO could not comply with the order due to bankruptcy proceedings.

1.3 Threat to Public Health and the Environment

The documented conditions at the EO site posed an imminent and substantial threat to public health and the environment, based upon the following criteria listed in Paragraph (b)(2) of 40 CFR 300.415 of the National Contingency Plan (NCP):

a) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

This threat was present at the EO site due to waste oil stored in on-site tanks which exhibited elevated levels of benzene (2.4 mg/l), chloroform (5.5 mg/l), trichloroethene (1.6 mg/l), and tetrachloroethene (3.2 mg/l) using the Toxicity Characteristic Leachate Procedure. These constituents are hazardous substances under Section 101(14) of CERCLA and were present at levels which exceed concentrations normally found in petroleum. The concentrations of benzene, trichloroethene and tetrachloroethene, as measured by the Toxicity Characteristic Leachate Procedure, exceed the TCLP regulatory limits. Several releases were documented which resulted in the accumulation of waste oil both within and outside secondary containment structures. Drums were found scattered across the site in various stages of deterioration. Analytical results also concluded that hazardous substances such as methyl ethyl ketone, arsenic, chromium, cadmium, lead, thallium, and zinc were present in some of these drums (see Appendix 3-A, TAT SA Report, November 1991, [Appendix D]), and are hazardous substances pursuant to 40 CFR section 402.4.

A potential existed for adults and children to come into direct contact with accumulated and discharged wastes due to the unrestricted access. The site had reportedly been the target of repeated vandalism and portions of the perimeter fence had been removed. Clothing and other personal belongings had been found on-site, indicating vagrants had been residing within the buildings. Observations made during previous site investigations and cleanup efforts concluded that the Conrail railroad tracks were a frequent play area for children. The nearest residence is less than 60 feet south of the site.

b) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

The EO site posed this threat due to the two aboveground tank farms with a combined storage capacity of 1.3 million gallons, which were situated along the northern boundary of the site. The local fire department had responded to contain and remove waste

material which had been released from these tanks on several occasions. U.S. EPA and the TAT documented off-site migration of waste oil as a result of the release. Analytical results revealed that hazardous substances were present in the waste oil and some of these exceed the TCLP regulatory limits. Analytical results from samples collected by U.S. EPA and the TAT during the site assessment activities concluded that several tanks contained waste oil and other hazardous substances. In addition, drums were scattered throughout the site, some leaking and on their sides. Air monitoring conducted of the drums and tanks with an HNu and OVA detected levels ranging between one and 440 units with the HNu and 1 to 1,000 ppm with the OVA, indicating the presence of volatile organic compounds.

c) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;

The EO site presented this threat due to the two tank farms with a total of 16 aboveground storage tanks which were situated on-site. One tank farm, which encompassed four 250,000-gallon tanks, included a secondary containment structure comprised of four concrete walls and an earthen floor. On several occasions, reportedly as a result of vandalism, waste oil had been released from these tanks into the containment area, permeated the earthen floor, and migrated under the concrete containment wall. The waste oil then migrated from the containment area and accumulated near the railroad tracks located along the northern perimeter of the site. Analytical results from samples collected of the waste oil revealed elevated levels of chemical solvents which are not commonly found in refined petroleum fractions and are hazardous substances under Section 101(14) of CERCLA.

d) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

The EO site posed this threat as a result of past releases from on-site tanks which resulted in soil within the secondary containment area becoming saturated with waste oil. During periods of heavy precipitation, waste oil continued to migrate underneath the containment wall and accumulate along the railroad tracks north of the site. The potential existed for the waste oil to further migrate along a depression parallel to the tracks and enter the storm sewer system where the tracks cross a surface street. Continued exposure of the drums to the outside elements would have caused further deterioration, resulting in a release of their contents.

e) Threat of fire or explosion;

Documentation and labels observed on-site indicated several drums contained isopropanol. Analytical results of samples collected from various drums revealed flash points ranging between 70° and 75°F and 80° and 85°F. If these drums were to ignite, residual waste oil which remained in the storage tanks would provide an additional combustion source and allow a fire to spread throughout the abandoned buildings remaining on-site. Approximately 25 residential homes are located directly adjacent to the site's south boundary.

1.3.1 Natural Resource Damage

The EO site is located in a mixed residential/industrial/ commercial area of northwest Detroit, and is bordered on the east by Linwood Avenue (Figures 1 and 2). The site is bordered by light industry to the north and northwest. The nearest body of water is the Detroit River, approximately 3.5 miles to the southeast. Although sewers are present on-site, water ultimately drains into the City of Detroit combined sewer system. A release which occurred in July 1991 resulted in off-site contamination. However, the release was confined to property operated by Conrail Railroad, and no further migration was documented. No natural resource areas were identified as being impacted by the site, and no formal study of natural resource damage was conducted by either the U.S. Department of the Interior or MDNR.

1.4 Attempts to Obtain a Response by Potentially Responsible Parties

The EO site was initially developed by the Critin-Kolb Oil Company which operated the facility from 1956 to 1968. Minimal commercial activity occurred at the site between 1968 and 1976 as attempts were made to sell the property. In March 1976, the

Critin-Kolb Oil Company sold the facility to the Enterprise Oil Company (Enterprise), which operated the site as a petroleum distribution facility. Enterprise sold the facility to D & W Oil Company, which continued to operate the facility under the name Enterprise, until March 1988. Martin J. Pierce and Fred Levine purchased the facility from D & W Oil. In August 1989, Levine sold his share to MORECO. On June 3, 1991, MORECO filed for reorganization under Chapter 11 of the Federal Bankruptcy Code.

On July 30, 1991, MDNR issued a letter informing MORECO that it was a responsible party under Michigan Environmental Response Act, Public Act 1982, and under Section 10(a) of Act 307. MDNR further requested MORECO to undertake and complete removal activities at the site within 90 days. MORECO completed a limited cleanup at the site, but failed to comply with the scope of work outlined by MDNR. On August 21, 1991, DCIH requested assistance from U.S. EPA. The OSC met with representatives from MORECO on September 18, 1991, and requested MORECO, as the potentially responsible party (PRP), to initiate removal actions at the site.

MORECO contracted Lunsford to conduct removal actions at the site. MORECO initiated cleanup efforts on October 2, 1991, with the understanding that a formal work plan and health and safety plan, as required by the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) and Occupational Safety and Health Administration (OSHA), would be submitted for U.S. EPA approval by October 11, 1991. MORECO failed to meet the required deadline and the OSC ordered MORECO's contractor to cease removal activities on October 25, 1991, until a formal work plan and health and safety plan were completed.

Due to ongoing bankruptcy proceedings, MORECO indicated that the company would not enter into an Administrative Order of Consent with U.S. EPA. However, on November 8, 1991, U.S. EPA submitted a draft UAO to MORECO for comments and agreement to begin cleanup activities. U.S. EPA and MORECO met on November 22, 1991, to discuss and finalize comments made by MORECO. A title search was completed on December 6, 1991, and concluded MORECO to be a PRP for the site. The final UAO was issued on December 26, 1991. PRP removal activities continued through February 1992, at which time MORECO informed U.S. EPA that due to bankruptcy proceedings it was unable to complete removal activities.

1.5 Chronological Narrative of Response Actions Taken

On March 19, 1992, a $2 Million Exemption Request Action Memorandum was approved by the Assistant Administrator for Solid Waste and Emergency Response to expend up to $2.2 million for a time-critical removal action at the site. The Action Memorandum was signed contingent upon MORECO's failure to comply with the

UAO. On June 8, 1992, MORECO was found in violation of the UAO, and U.S. EPA initiated removal actions at the site on June 15, 1992. Removal activities were conducted by the U.S. EPA Emergency Response Contracting Services (ERCS) contractor, International Technologies Environmental Programs Corporation (ITEP) of Cincinnati, Ohio, under delivery order 7460-05-232.

For ease of discussion, this section is divided into sixteen subsections, each of which corresponds to a major activity conducted during the site stabilization and removal. These activities are also represented on a time line which illustrates the sequence of events (Attachment A).

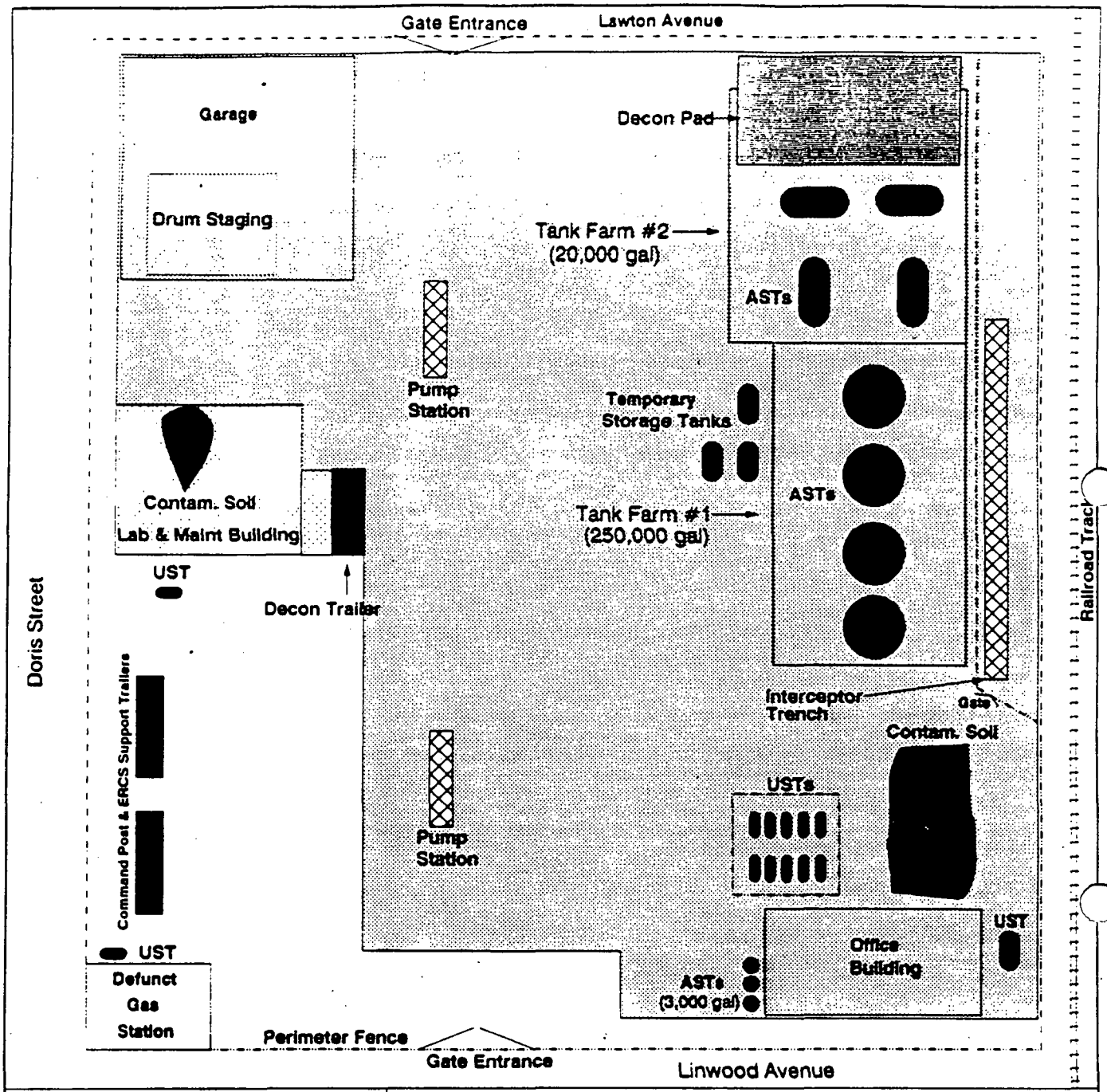
1.5.1 Safety and Support Facilities

On June 15, 1992, the ERCS contractor, ITEP, mobilized to the site to conduct immediate stabilization of materials which posed the greatest threat of release. These activities included securing the perimeter fence surrounding the site, establishing 24-hour security at the site, and securing drums and small containers containing volatile organic compounds and chemical solvents. Full mobilization occurred on June 22, 1992, and a site health and safety plan was adopted by U.S. EPA, the TAT, and ERCS on June 22 as well. Work and transition zones were delineated and site setup also completed on June 22, 1992, which included the installation of a decontamination pad (refer to Figure 3).

1.5.2 Disposal of Non-hazardous Debris

At the time of mobilization, miscellaneous debris was scattered throughout the site. Several roll-off boxes were procured from City Environmental for loading and shipment of non-hazardous debris to an U.S. EPA-approved disposal facility. The non-hazardous debris(much of which blocked main thoroughfares) impeded access to several areas of the site. Removal of debris was initiated in the southeast portion of the site and segregated in order to complete setup of the site support and transition zones. A total of 200 cubic yards of non-hazardous debris including wood, paper, vegetation, and municipal garbage was shipped to Metropolitan Transfer Center (MTC) in Detroit, Michigan, between June 17 - 22, 1992 (see Table 1, Waste Disposal Summary). All metal debris was staged in a separate area awaiting decontamination, and was later shipped off-site for reclamation (see subsection 1.5.5).

Throughout removal activities, other waste streams were also characterized as non-hazardous and shipped off-site for land disposal or recycling. The concrete structures used to elevate horizontal ASTs, portions of the containment wall, and other miscellaneous concrete which was scattered throughout the site impeded the removal action and were decontaminated and staged for



LEGEND

- Support Zone
- Transition Zone
- Exclusion/Work Zone
- Fence

EPA U.S. EPA REGION V

EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

TITLE: SITE WORK ZONE MAP	FIGURE #: 3
SITE: ENTERPRISE OIL SITE	SITE ID: PG
CITY: DETROIT STATE: MICHIGAN	SCALE: NOT TO SCALE
SOURCE: ECOLOGY & ENVIRONMENT, INC	DATE: 11/3/93

Table 1

WASTE DISPOSAL SUMMARY
Enterprise Oil Site
Detroit, Michigan

Waste Category	Quantity	Date Shipped	* Manifest #	Disposal Method	Facility Location
Debris Non-hazardous	280 yd^3	6/17/92 - 8/28/92	NA	Landfill	Metropolitan Transfer Center (MTC) Detroit, MI
Metal Debris Non-hazardous	211.03 tons	6/27/93 - 10/06/92	NA	Reclamation	Vito's Salvage Detroit, MI
Coal fine/ #2 oil solids Non-hazardous Non-regulated	7 yd^3	7/27/93	MI12791204	Fuels Blending	Clark Processing Dayton, Ohio
Concrete Non-hazardous	280 yd^3	8/26/92 - 8/28/92	NA	Recycled	Dullinger Inc. Brownstown, MI
Waste Oil	80,600 gal.	8/28/92 - 9/08/92	* see below	Fuels Blending	American Waste Belleville, MI
Waste Water	256,500 gal.	8/28/92 - 9/11/92	* see below	Treatment	American Waste Belleville, MI
Coal fine/ #2 oil debris Non-hazardous	20 yd^3	9/17/92	NA	Landfill	Woodland Meadows Wayne, MI

* See Appendix 3-N for itemized Manifest #'s.

Table 1 (Cont.)

WASTE DISPOSAL SUMMARY
Enterprise Oil Site
Detroit, Michigan

Waste Category	Quantity	Date Shipped	* Manifest #	Disposal Method	Facility Location
PPE Non-hazardous	40 yd^3	9/17/92 - 9/23/92	NA	Landfill	Woodland Meadows Wayne, MI
Waste Oil Residual/Sludge Non-hazardous	8,141 gal.	12/02/92	* see below	Fuels Blending	PCI East Chicago, Indiana

* See Appendix 3-N for itemized Manifest #'s.

disposal. A composite sample was collected and submitted to A & B Laboratories in Farmington Hills, Michigan, for analysis. Analytical results concluded the waste stream to be non-hazardous. A total of 280 cubic yards of concrete were shipped off-site to Dullinger, Inc., in Brownstown, Michigan, for recycling.

In addition, composite samples were collected from the disposable personal protective equipment (PPE) utilized on-site; and small containers including glass, plastic, rubber, and metal. Samples were submitted to three separate facilities for characterization and disposal acceptance in August 1992. A total of 40 cubic yards of non-hazardous debris were shipped to Woodland Meadows in Wayne, Michigan, for land disposal. A total of an additional 80 cubic yards of non-hazardous debris was shipped to MTC in Detroit, Michigan, on August 28, 1992.

1.5.3 Utilization of Temporary Holding Tanks

During PRP removal activities, MORECO pumped the contents from eight 20,000-gallon ASTs. However, four miscellaneous empty tanks had been left on-site. On June 16, 1992, the ERCS staged three of these 20,000-gallon tanks on the south side of the containment wall in the western portion of the site (Figure 3). The tanks were designated as temporary holding tanks for decontamination water, consolidation of oil/sludge remaining on-site, and water from the interceptor trench installed near the Conrail tracks (see subsection 1.5.4). These tanks were utilized throughout the duration of removal activities.

In July, the tank designated for consolidation of compatible on-site oil and sludge was accidentally punctured by heavy equipment. The tank which contained the contents of drums, small containers, and sludge and liquid removed from ASTs was transferred to the temporary holding tank designated for decontamination water. On July 9, 1992, Powervac, Inc. was subcontracted to transfer the contents from the ruptured tank. On July 21, 1992, a 20,000-gallon fractionation (frac) tank was mobilized to the site to contain remaining decontamination water prior to disposal.

1.5.4 Interceptor Trench Operation and Maintenance

As a result of repeated incidents of vandalism at the site, waste oil had been released from several ASTs. Specifically, in July 1991, vandals reportedly removed the brass valve from one of the 250,000-gallon ASTs causing a spill of approximately 45,000 gallons of material within the concrete secondary containment structure. The waste oil migrated off-site beneath the concrete containment structure, and accumulated along the Conrail tracks located adjacent to the north perimeter of the site. Waste oil covered an area approximately 400 by 60 feet, contaminating the

underlying soil.

During PRP removal activities, an interceptor trench had been constructed in an effort to alleviate the further migration of waste oil which continued to seep underneath the containment structure. The interceptor trench was excavated parallel to the north containment wall of tank farm #1 (see Figures 2 and 3). The floor of the trench was lined with visqueen and 1 inch stone, and a perforated pipe was placed on top of the gravel-lined floor. A layer of 1" stone was placed over the perforated pipe and a 250-gallon sump was installed at the east end of the trench. Accumulated waste oil and water was periodically pumped from the sump by MORECO's contractor and shipped to a local recycler for disposal.

The contaminated soil removed prior to construction of the interceptor trench area had been staged in the on-site maintenance building. On June 18, 1992, the ERCS removed the contaminated soil from the maintenance building to allow for the removal of non-hazardous debris contained in the building for disposal. The soil was staged on the northern portion of the site, behind the office/laboratory building, and covered with visqueen.

ERCS continued the maintenance and operation of the interceptor trench during U.S. EPA removal activities. Waste oil and water continued to accumulate in the interceptor trench, principally due to heavy rainfall, leaving a freeboard space of 1 inch. A hole was dug at the west end of the trench to facilitate water flow. A pump was then placed in the hole and utilized to dewater the trench. The waste oil and water was pumped into an oil water separator. The water and waste oil were stored in two separate 20,000-gallon temporary holding tanks until disposal was procured. Daily inspections of the interceptor trench were conducted throughout the removal action to ensure proper operation and maintenance.

On September 10, 1992, the trench was removed and the contaminated soil excavated. Clean clay was utilized as backfill material for the former trench. In addition, the clay was utilized to construct a reinforcement berm to replace the northern section of the concrete containment wall from tank farm #1, which had been removed during trench excavating activities. A total of 750 cubic yards of clean clay was utilized for these activities.

1.5.5 Tank Shearing and Decontamination/Reclamation of Scrap Metal

Prior to loading roll-off boxes which were shipped to MTC with non-hazardous debris, metal which impeded the removal action and in some cases covered contaminated soils, was removed and staged

for reclamation. On June 22, 1992, a decontamination pad was constructed with 2 inch stone in the northwest corner of the site (Figure 3). A sump was placed at the east end of the decontamination pad to collect the mixture of water and a biodegradable degreasing agent was utilized as a decontamination solution. Consolidation and decontamination of scrap metal was conducted concurrently with other activities throughout the removal action. Metal designated for reclamation included empty ASTs removed during PRP removal activities, and miscellaneous metal from dismantling activities completed by the PRP's contractor. On June 23, 1992, a local scrap dealer was procured to reclaim all metal from the site after decontamination was conducted.

Additional stone was delivered to the site, and an access driveway was constructed from the west gate to the decontamination pad to provide easier access for trucks transporting scrap metal. Hydraulic tank shears mounted to a trackhoe were mobilized to the site on June 25, 1992, and were utilized to cut through tank casings from the ASTs and USTs. Prior to initiating decontamination of the tanks, the TAT obtained point readings from each AST and UST utilizing a CGI. The lower explosive limit (LEL) was measured on each tank prior to cutting for decontamination to ensure the health and safety of on-site personnel and area residents. A LEL reading of 0% was obtained for all tanks indicating no explosion hazard was present.

Decontamination of scrap metal continued and the shearing of all USTs was completed on July 1, 1992. Throughout removal activities, continuous site reconnaissance was conducted to locate pipe and metal buried on-site. The final load of scrap metal was shipped off-site on October 6, 1992. A total of approximately 200 gross tons of scrap metal was shipped off-site for reclamation between June and October 1992. A total of $5,179.08 was received from scrap metal recycling activities. The funds were applied to the project to offset costs incurred during removal activities.

1.5.6 Tank, Drum, and Small Container Sampling

All drums and small containers had previously been staged and secured in the garage building during PRP removal activities (Figure 2). On June 16, 1992, the TAT conducted an inventory of containers staged in the garage and determined that eleven 250-gallon tanks, one 500-gallon, 47 drums (both 35 and 55 gallon) and 45 small containers (with a capacity of 5 gallons or less) were present. The ERCS initiated and completed sampling of all drums on June 22, 1992. Continuous air monitoring was conducted by the TAT to ensure safety during sampling activities, and all sampling was conducted in Level B protection as outlined in the site health and safety plan.

On June 24, 1992, small container sampling was completed. A total of 37 drum and 34 small container samples were collected. Upon investigation, various drums and miscellaneous small containers were found to contain no material. The empty drums were decontaminated and shipped for reclamation, while plastic containers were shipped off-site for disposal. Drums, cans, and buckets containing material were covered with visqueen, and ultimately consolidated for disposal (see subsection 1.5.7). Detailed drum logs were completed for all containers sampled (see Appendix 3-E). Representative samples were collected from the 250-gallon fuel tanks and the 500-gallon tank also staged in the on-site garage. Prior to sampling, the TAT conducted air monitoring for explosive atmosphere utilizing the CGI. No readings above background were obtained.

1.5.7 Drum and Small Container Waste Characterization, Bulk Testing, and Consolidation

On June 22, 1992, the TAT initiated on-site analysis of the 37 drum and 34 small container samples. Hazardous categorization was completed on all samples, and the results used to determine waste stream consolidation. Results from hazardous categorization analysis concluded that all samples from drums and small containers were compatible, and one waste stream was developed. Bulk testing was performed prior to consolidating the contents of the drums and small containers. No chemical reactions were observed during bulk testing confirming compatibility. Drums and small containers were consolidated into the 20,000-gallon oil/sludge temporary holding tank on July 1, 1992, until disposal procurement.

Hazardous categorization analysis was also completed on samples collected from the 250-gallon and one 500-gallon fuel tanks. Material present in the tanks was also found to be compatible with the contents of the drums and small containers. On July 7, 1992, the contents of the tanks were consolidated with material contained in the 20,000-gallon oil/sludge temporary holding tank.

The fuel tanks were decontaminated and shipped off-site for reclamation. All metal empty drums and small containers were rinsed with the decontamination solution, crushed, and shipped off-site for reclamation. Plastic drums and small containers were cut and deemed unusable, and shipped off-site for land disposal with non-hazardous debris.

1.5.8 Underground Storage Tank Removal

During PRP removal activities samples from the underground storage tanks were collected, sent for off-site analysis, and found to contain waste oil. Prior to initiating the removal of on-site USTs, the OSC contacted Lieutenant J. Reardon of DFD. Lt. Reardon frequented the site during the UST removal, and was

informed of all removal activities through weekly pollution reports (POLREPs). The removal of the USTs was initiated on June 23, 1992. Continuous air monitoring was conducted during the unearthing and removal of all USTs utilizing the HNu. Ambient air monitoring revealed readings of between 1 and 2 units above background.

A total of ten 15,000-gallon tanks were removed from the excavation by June 26, 1992 (see Figure 3). The excavation extended to an approximate 640 square foot area and a 20 foot depth. A vacuum truck was mobilized to the site and utilized to consolidate the residual material contained in all the USTs into one 15,000-gallon tank. The material removed from the USTs totaled approximately 3,000 gallons of mixed waste oil and water. On July 29, 1992, a 500-gallon UST was discovered parallel to the north side of the office building (see Figure 2). The tank, which contained no material, was removed. All USTs were staged for decontamination and reclamation.

On September 19, 1992, two additional USTs were removed: one 1,000-gallon tank located east of the maintenance building, and one 500-gallon tank located near the east entrance gate. Although these tanks had been identified in July, removal was postponed due to their close proximity to the established support zone. Prior to removal, a vacuum truck was utilized to remove material contained in the USTs. The material was processed through the oil/water separator and the recovered oil was consolidated into the temporary oil/sludge holding tank. The TAT collected soil samples from both excavation areas to ensure all contaminated soil had been removed. Analytical results of the soils revealed contamination and the contaminated soil was excavated and staged within the tank farm #1 containment area. Both excavations were backfilled utilizing clean clay.

Intermittent heavy rain throughout the entire month of July caused rain water to accumulate in the main UST excavation. On several occasions this water was pumped into temporary holding tanks in an effort to dewater the excavation. However, due to continuous rain, the volume of water accumulating in the excavation exceeded on-site storage capacity. The excavation was ultimately utilized as a holding basin for the rain water and decontamination water. All water was ultimately pumped from the excavation and shipped for off-site treatment and disposal (see subsection 1.5.15). Upon dewatering the excavation, the original soil was utilized to backfill the area. Backfill was initiated to eliminate rain water from accumulating in the excavation, and with the intent of completing treatment/disposal of all contaminated on-site soil during future removal actions.

1.5.9 Coal Fines/#2 Oil Waste

Three 3,000-gallon ASTs were situated inside the east entrance

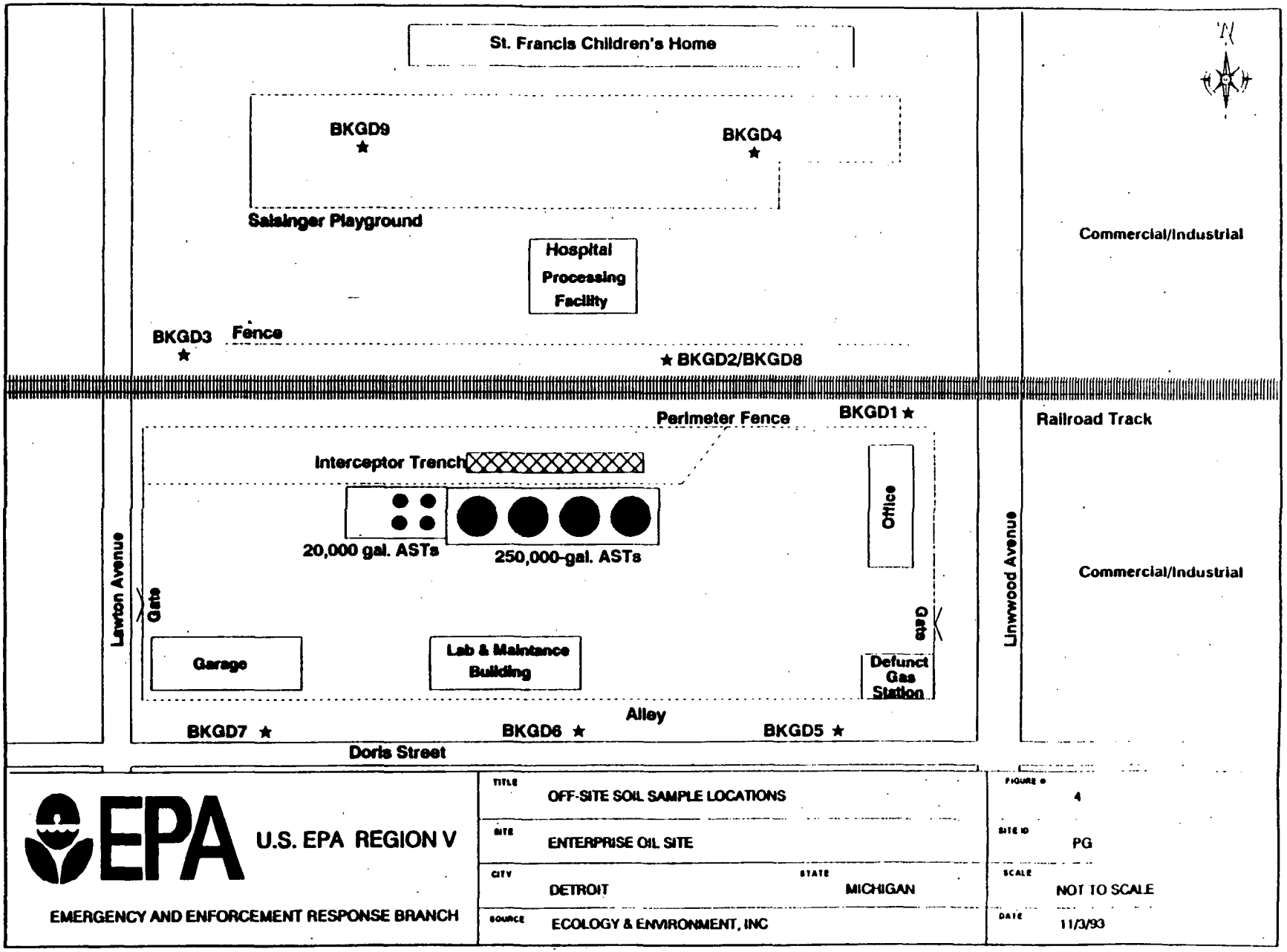
gate and directly adjacent to the office/laboratory building (Figure 2) and, in that location, impeded removal activities. The office/laboratory building was deteriorated and portions of the roof and brick walls had fallen to the ground. Material contained in these tanks was observed on the ground and mixed with debris from the building. The tanks were suspected to contain a mixture of coal fines and #2 waste oil.

A composite sample was collected on June 29, 1992, and submitted to Clark Processing in Dayton, Ohio, for fuels blending. The material was composed of approximately 10% water, 40% coal fines, and 50% oil. A sample was also submitted to Great Lakes Laboratories for PCB analysis. Analytical results revealed no levels of PCBs. The analytical results were forwarded to Clark Processing as additional information for waste characterization. Upon receiving disposal acceptance from Clark Processing, consolidation of the material contained in the three tanks was initiated. U.S. Department of Transportation (DOT) regulated one cubic yard boxes were designated as the proper shipping container for the waste. A polyeurethane liner was installed in each box prior to transferring the waste from the tanks. Consolidation of the material was completed, and a total of seven 1-cubic-yard boxes were shipped to Clark Processing for fuels blending on July 27, 1992.

The debris near the tanks and the office/laboratory building, observed to be covered with a thick mixture of oily material and coal fines, was loaded into a lined, 20-cubic-yard roll-off box for disposal. On July 15, 1992, three separate composite samples were collected from the roll-off box and submitted to facilities for disposal acceptance. The debris was ultimately shipped to Woodland Meadows in Wayne, Michigan, for land disposal on September 17, 1992.

1.5.10 Background Sampling

On July 9, 1992, the TAT collected nine off-site soil samples including one duplicate sample. Samples were collected from various locations immediately beyond the site perimeter fenceline to assess the extent of off-site migration of contaminants from the site (see Figure 4). Samples were also collected from a recreational area approximately 1 mile north of the site in an attempt to characterize the soil of the local area. All samples were submitted to National Laboratories in Evansville, Indiana, for analysis of volatile organic compounds, semi-volatile organic compounds, TPH, and the thirteen priority pollutant metals. Off-site soil sampling was conducted prior to initiating an on-site extent-of-contamination (EOC) study. Analytical results revealed that hydrocarbon contamination was limited to the site's boundaries and did not extend past the fenceline.


St. Francis Children's Home
BKGD9
BKGD4
Salsinger Playground
Hospital Processing Facility
Commercial/Industrial
BKGD3
Fence
BKGD2/BKGD8
Perimeter Fence
BKGD1
Railroad Track
Interceptor Trench
Office
20,000 gal. ASTs
250,000-gal. ASTs
Lawton Avenue
Gate
Gate
Linwood Avenue
Commercial/Industrial
Garage
Lab & Maintance Building
Defunct Gas Station
Alley
BKGD7
BKGD6
BKGD5
Doris Street
N
EPA
U.S. EPA REGION V
EMERGENCY AND ENFORCEMENT RESPONSE BRANCH
TITLE
OFF-SITE SOIL SAMPLE LOCATIONS
FIGURE #
4
SITE
ENTERPRISE OIL SITE
SITE ID
PG
CITY
DETROIT
STATE
MICHIGAN
SCALE
NOT TO SCALE
SOURCE
ECOLOGY & ENVIRONMENT, INC
DATE
11/3/93

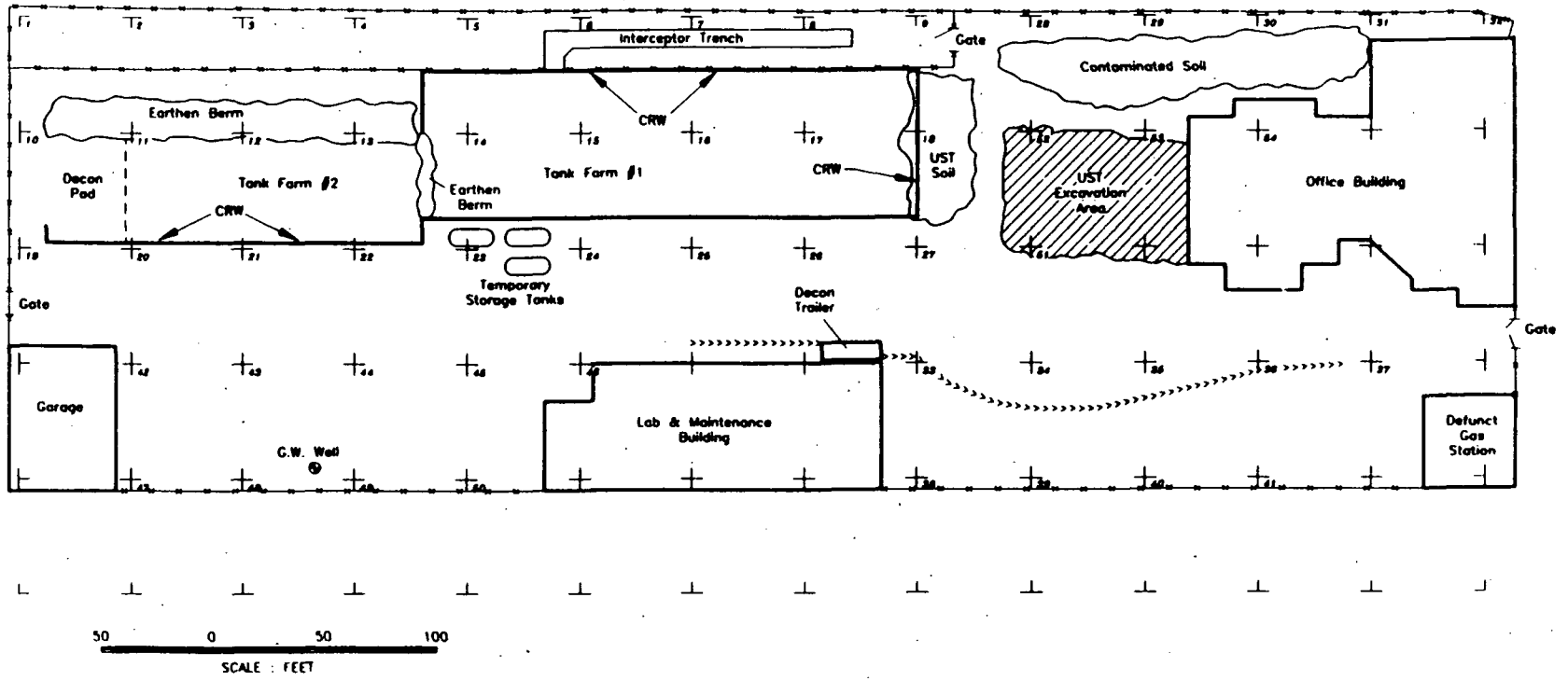
1.5.11 Aboveground Storage Tank Removal

The removal of the ASTs was initiated on July 9, 1992. Four 20,000-gallon tanks were found to contain waste oil which had not been removed during PRP removal activities (Figure 2). The contents of these four tanks were pumped into the oil/sludge temporary holding tank (see subsection 1.5.3). A total of approximately 7,500 gallons were removed from the four tanks. Bulk testing was conducted prior to consolidation to ensure the waste contained in the four tanks was compatible with the material previously bulked in the holding tank. Upon completing the consolidation of material contained in the ASTs, a crane was utilized to lift the four 20,000-gallon horizontal tanks from their concrete elevation saddles. The tank casings were sheared, decontaminated, and shipped off-site with other scrap metal for reclamation (see subsection 1.5.5). The concrete saddles were demolished on July 16, 1992, and ultimately shipped off site by Dullinger, Inc. for recycling.

The four 250,000-gallon vertical tanks also contained residual waste oil and sludge (Figure 2). During PRP removal activities, the majority of the product contained in these tanks was removed and shipped to the MORECO facility in McCook, Illinois. However, residual sludge remained in the bottom of these tanks. Due to the consistency of the material, efforts to drain the tanks through the original valves was unsuccessful. Trackhoe mounted hydraulic tank shears were utilized to cut a hole in the side of each tank to allow access to the material. A power vacuum truck was utilized to remove the residual from the tanks. Approximately 13,700 gallons of material was removed from the tanks and consolidated in the oil/sludge temporary holding tank until disposal. Hazardous categorization was conducted on samples collected from each tank to ensure compatibility. Consolidation of material was conducted in level B personnel protection, and the ASTs were treated as a confined space. The ASTs were sheared, decontaminated, and shipped for reclamation (see subsection 1.5.5).

1.5.12 Extent of Contamination Study

On August 7, 1992, a sampling grid was constructed across the site for the purpose of conducting an EOC study. The EOC study was conducted to determine the presence, extent, and magnitude of vertical and lateral contamination in surface and subsurface soils. A portable transit was utilized to plot reference points for the sampling grid which encompassed the entire 3.1 acre site (Figure 5). A total of 54 sampling points were identified. An U.S. EPA Quality Assurance Sampling Plan for Emergency Response (QASPER) for conducting sampling activities for the EOC study was completed. All sampling was conducted in accordance with this plan which is included in Appendix 3-J of this report.



LEGEND

- FENCE
- EXCAVATION
- BERM/MOUND BOUNDARY
- 33, 4, 12 GRID NUMBERS SURVEYED – SAMPLES
- CRW CONCRETE RETAINING WALL
- PLASTIC (ORANGE) FENCING

N

15°

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

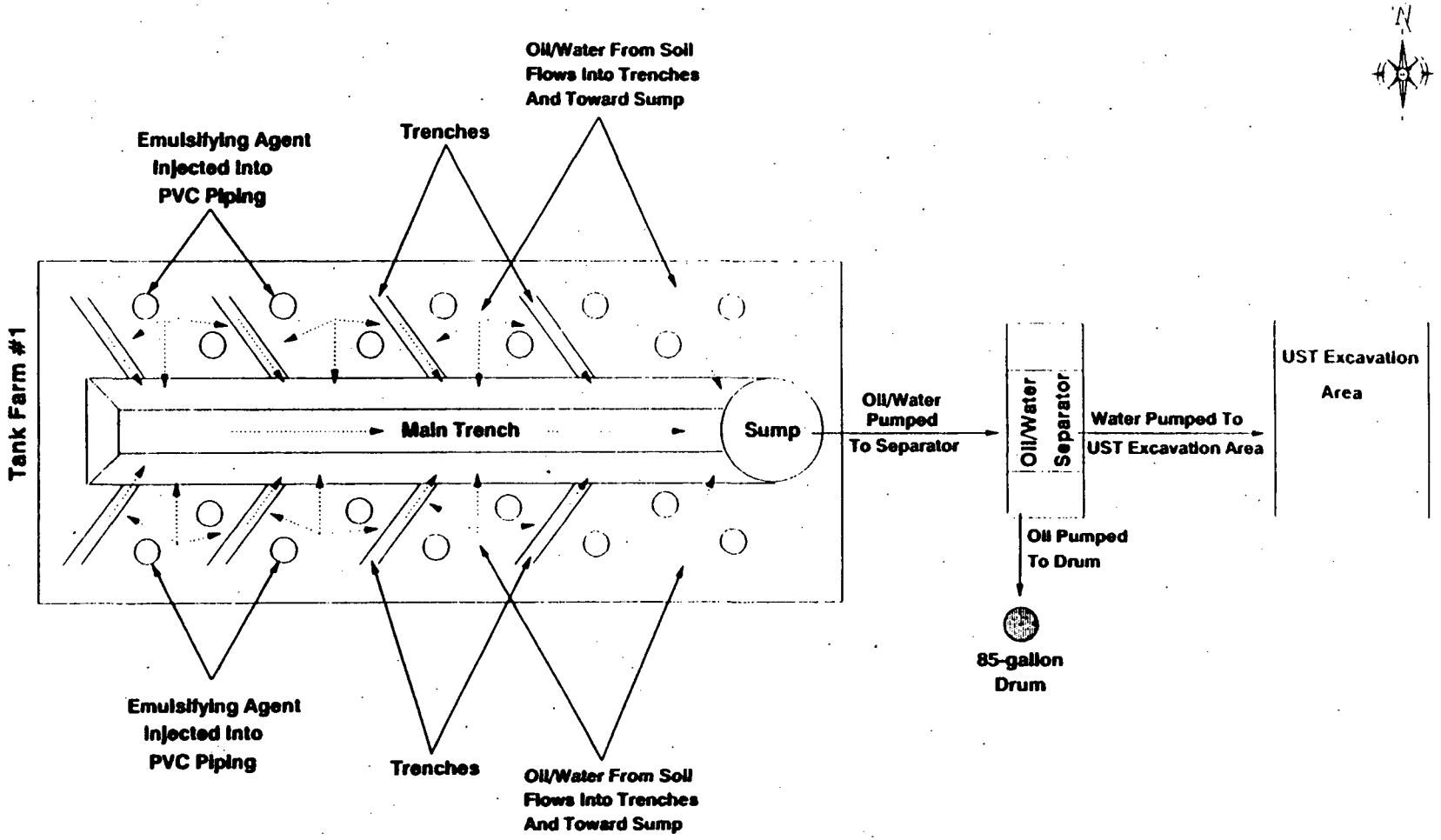
TITLE: EXTENT OF CONTAMINATION GRID MAP	FIGURE #: 5
SITE: ENTERPRISE OIL SITE	SITE ID: PG
CITY: DETROIT STATE: MICHIGAN	SCALE: 1:50
SOURCE: ECOLOGY & ENVIRONMENT, INC	DATE: 11/18/83

Prior to initiating sampling, ERCS procured a drilling subcontractor, Geotest Inc., to assist with borehole placement and subsurface sampling. Standard operating procedures for subsurface sampling and on-site drilling were approved by the OSC and incorporated into the site health and safety plan. Sample collection began on August 17, 1992, and was completed on August 25. Approximately 270 samples were collected from various locations and depths at the site. Observations made during sampling activities indicated that subsurface soils underlying the site consist of blue/grey clay. The blue/grey clay was noted at a depth of approximately three feet and extended to a depth of 17 feet in some areas of the site. Visible contamination was observed throughout the clay layers. The earthen floor within the containment structure consisted of permeable sandy soil. The sandy soil was observed to a depth of approximately five feet beneath the surface, with underlying blue/grey clay extending to a depth of 10 feet.

The TAT conducted field screening utilizing an OVA and portable gas chromatograph throughout the EOC study. Field screening was initiated to determine the depth of contamination at each sample point in an effort to reduce the number of samples sent to a laboratory, and ultimately reduce off-site laboratory costs. All 270 samples were screened for organic vapors utilizing the OVA. If organic vapors were detected, the sample was subsequently screened for benzene, ethylbenzene, toluene, and xylene (BETX) utilizing a portable gas chromatograph. Samples identified as containing BETX were designated for off-site laboratory analysis, based on the field screening results. A total of 78 samples were submitted to A & B Laboratories in Farmington Hills, Michigan, for volatile organic compounds, semi-volatile organic compounds, and TPH analysis. Analytical results confirmed hydrocarbon contaminated soil extends laterally throughout the site, and vertically to a depth of 15 feet in some areas. Field screening data and analytical results can be found in Appendices 3-J-1 through 3-J-3.

1.5.13 Oil/Water Separation Process

In an effort to remove visible free-flowing oil contamination in the tank farm #1 area, a pump and oil separation processing operation was initiated at the site (Figure 6). On August 24, 1992, utilizing an excavator, a trench was dug in the center of tank farm # 1 extending from the western concrete wall to the eastern wall. A hole extending to an approximate two foot depth was dug at the east end of the trench. The trench was sloped to facilitate the flow of water and oil to the hole where it was ultimately pumped into an oil/water separator. Water from the separation process was pumped to the main UST excavation area. The oil recovered during the process was pumped into an 85-gallon drum, and ultimately transferred to the oil/sludge temporary holding tank.



EPA U.S. EPA REGION V

EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

TITLE	OIL/WATER SEPARATION PROCESS
SITE	ENTERPRISE OIL SITE
CITY	DETROIT
STATE	MICHIGAN
SOURCE	ECOLOGY & ENVIRONMENT, INC

FIGURE #	6
SITE ID	PG
SCALE	NOT TO SCALE
DATE	11/3/93

On September 1, 1992, ERCS subcontracted Bioremediation and Environmentally Sound Technologies (BEST) to assist in the removal of free-flowing waste oil from the containment area. An emulsification process was implemented to expedite removal efforts. Sections of Polyvinyl Chloride (PVC) piping were installed within the containment structure and surrounded the man-made trench (see Figure 6). Utilizing a high pressure injection system, a non-hazardous emulsifying agent was injected into the piping to force free floating oil and sludge to the surface. The oil/water separator was utilized to continually flush water through the containment structure to separate emulsified oil and water. Waste water and oil were shipped off-site for treatment and disposal. Corncob fines were utilized to absorb residual liquids present upon completion of the emulsification process.

1.5.14 Evaluation of Soil Remediation

During removal activities, the OSC began researching bioremediation as an alternative treatment/disposal option for on-site contaminated soil. On July 17, 1992, the OSC requested ITEP to identify prospective subcontractors to conduct bioremediation activities at the site. Representatives from ITEP, BEST, and Midwest Environmental Consultants Corp. (MEC) met on site July 23, 1992, to obtain site specific information in order to prepare formal bids for conducting bioremediation at the site. The deadline for bid submittal was designated for July 31, 1992, at 1200 hours. Upon review, bid proposals received were determined to be inadequate for the scope of work outlined at the site. As a result, removal activities were modified to secure the site until soil remediation is conducted.

1.5.15 Waste Water and Waste Oil Disposal

On August 28, 1992, off-site disposal of waste water and waste oil was initiated at the site. Waste water contained in the 20,000-gallon frac tank, the UST excavation, and the temporary holding tank was transferred into tanker trucks and shipped off-site for treatment and disposal. A total of approximately 256,500 gallons of waste water including decontamination water and accumulated rain water was transported by Wolverine Oil to American Waste in Belleville, Michigan, for treatment.

Waste oil stored in the designated temporary holding tanks was shipped off-site concurrently with on-site waste water. Waste oil consolidated from drums, small containers, ASTs, USTs, and the secondary containment area (tank farm #1) was transferred to tanker trucks and shipped off-site for recycling. Approximately 80,600 gallons of waste oil was transported by Smith Oil to American Waste in Belleville, Michigan.

1.5.16 Demobilization

Demobilization of heavy equipment, the ERCS trailer, other support zone utilities, and six crew members was completed on September 23, 1992. The 20,000-gallon frac tank containing approximately 8,000 gallons of waste oil remained at the site. Twenty-four hour on-site security continued until final disposal of the waste oil residual/sludge occurred. On December 2, 1992, two ERCS crew members mobilized to the site to complete disposal of the 8,000 gallons of waste sludge. The frac tank was demobilized on December 4, 1992.

1.6 Community Relations

The NCP requires a community relations plan for any removal action where on-site activities exceed a four month duration. The U.S. EPA Region V Office of Public Affairs developed and implemented a site specific community relations plan at the EO site in July 1992. On July 8 and 9, 1992, representatives from U.S. EPA and the TAT met at the site and conducted a community assessment to gather information for the development of the community relations plan as well as a fact sheet. U.S. EPA and the TAT conducted interviews with residents and local business owners to assess community concerns and reactions to the removal action. A fact sheet was distributed to local residents, businesses, and organizations in August 1992. The fact sheet was developed to inform the community of on-going activities and future plans for the site. U.S. EPA held a public meeting on August 11, 1992, to allow citizens to express concerns and ask questions regarding removal activities being conducted at the site. U.S. EPA also established information repositories at two locations near the site, specifically, for individuals seeking additional information pertaining to current activities.

In addition to the community relations plan, a site specific contingency plan was developed with local emergency planning officials. The plan was developed to formalize procedures should a health or chemical emergency arise. The Detroit Police Department, DFD, DCIH, and a local community organization were involved in the development of the plan which addressed provisions for responding to fire, medical, and police emergencies.

1.7 Cost Summary

ITEP Corporation was the ERCS contractor for the EO site, and completed removal activities under Delivery Order # 7460-05-232. Site activities began on June 15, 1992, and were completed on December 4, 1992. Table 2 provides an itemized listing of the ERCS contractor expenditures by the major categories of labor, equipment, materials, and subcontractors, as well as costs incurred by U.S. EPA and the TAT.

These costs are estimated, subject to audit and final definitization by U.S. EPA. The OSC Report is not intended to be a final reconciliation of all costs associated with a particular site.

Table 2

SUMMARY OF TOTAL ESTIMATED REMOVAL COSTS

Enterprise Oil Site
Detroit, Michigan
June 15, 1992 - December 4, 1992

EXTRAMURAL COSTS			
ERCS Contractor	(1)		$ 935,951.16
Labor			$ 260,790.24
Equipment			$ 5,272.78
Materials			$ 15,412.81
Subcontractors			$ 654,475.33
TAT contractor	(2)		$ 113,055.39
		Subtotal:	$ 1,049,006.55
INTRAMURAL COSTS	(3)		
U.S. EPA - Direct Costs			$ 23,590.00
Indirect Costs			$ 35,722.00
		Subtotal:	$ 59,312.00
ESTIMATED TOTAL PROJECT COSTS			$ 1,108,318.55
PROJECT CEILING			$ 2,013,800.00

(1) Source: ITEP Final Invoice #1232-6R, dated 8/30/93.

(2) Source: TAT Regional Organization Review Information System (RORIS) printout for TDD# T05-9206-015 ($106,664.29), and TDD# T05-9210-017 ($6,391.10) for week ending 12/4/92.

(3) Source: Incident Obligation Log (IOL) as of 10/30/92.

Any indication of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S.EPA. The OSC Report is not meant to be a final reconciliation of the costs associated with a particular site.

2.0 EFFECTIVENESS OF REMOVAL ACTION

2.1 The Potentially Responsible Parties

On December 6, 1991, U.S. EPA conducted a title search and subsequently identified MORECO as a PRP for the EO site. U.S. EPA issued a UAO to MORECO on December 26, 1991. MORECO initially agreed to conduct removal activities at the EO site. Limited removal activities were conducted by MORECO between October 1991 and February 1992. Removal efforts were ceased by MORECO due to ongoing bankruptcy proceedings (refer to subsection 1.4 for additional information). MORECO was found in violation of the UAO on June 8, 1992. U.S. EPA assumed resposibility for the removal action on June 15, 1992.

MORECO corporate headquarters are located in McCook, Illinois. In addition to the EO site, MORECO has been identified as a PRP for sites located in the states of Illinois and Wisconsin. MORECO filed for reorganization under Chapter 11 of the Federal Bankruptcy Code in June 1991. A plan of Reorganization was entered on September 14, 1992. On November 16, 1992, The U.S., the State of Illinois, and MORECO lodged a Settlement and Stipulated Order resolving MORECO's environmental liabilities, and was subsequently entered on December 22, 1992. The Settlement Agreement required MORECO to pay U.S. EPA a fixed sum for the cleanup of the four identified sites, a portion which would be credited to the EO site.

In addition, MORECO abandoned title to four sites. The titles were transferred to a trust for the benefit of other PRPs, and are held by the Remediation Trust described in the settlement agreement. The U.S. agreed to follow covenants not to sue or take administrative action against the reorganized company with respect to the four identified sites including the EO site. Upon identification, additional PRPs will be issued information requests, general notice of potential liability, and possible administrative orders.

2.2 State and Local Agencies

MDNR was unable to provide the necessary funding to perform the time-critical removal. However, MDNR originally identified the site and idetified MORECO as a PRP. (refer to section 1.4 for additional information). In addition, DFD and DCIH were supportive during U.S. EPA removal efforts. Both the DFD and DCIH were updated throughout removal activities via weekly POLREPs outlining site activities.

2.3 Federal Agencies and Special Teams

U.S. EPA was the sole Federal agency involved in removal actions at the EO site. All monetary resources, excluding PRP dedicated funds, were provided by U.S. EPA under CERCLA. Removal actions conducted by U.S. EPA effectively mitigated threats posed by the hazardous substances abandoned at the EO facility.

2.4 Contractors, Private Groups, and Volunteers

The ERCS contractor, ITEP, was the initial removal contractor at the EO site. Ecology and Environment, Incorporated (E & E), was the designated TAT contractor throughout the removal action. The removal action was completed efficiently, preventing any release of hazardous substances from on-site tanks.

3.0 DIFFICULTIES ENCOUNTERED

3.1 Procurement of Electrical Services

On June 16, 1992, Detroit Edison was contacted and an order placed for electrical services at the EO site. In preparation, a local electrician constructed temporary power service cabinets and installed the appropriate electrical lines for utilization on June 17, 1992, for electricity to the support and transition zones. However, Detroit Edison failed to install a temporary drop in a time efficient manner. In an attempt to procure electrical services, the OSC contacted Detroit Edison on several occasions regarding service. Detroit Edison refused to commit to a date for installation of the temporary drop. As a result, electricity was supplied to the command post by a fueled generator.

The utilization of the generator posed safety concerns for the transition areas as well as inhibited site progress. The site decontamination trailer was equipped with emergency showers and other life support equipment that would be utilized in the event of a medical or personnel emergency. Lack of electricity inhibited the decontamination unit from operating effectively, thereby preventing proper decontamination of personnel and equipment before exiting the site. The temporary drop was installed and services implemented on July 2, 1992, after continued correspondence with Detroit Edison's Legal Department.

3.2 Weather Conditions

During the entire month of July and part of September, heavy rainfall occurred in the Detroit metropolitan area, creating sloppy conditions at the EO site. The crew was inconvenienced by the necessity of conducting unplanned on-site water management activities which in turn inhibited other progress at the site.

Continuous rainfall caused a significant amount of water to accumulate in the UST excavation area. Several unsuccessful attempts were made to dewater the UST excavation. Ultimately, the amount of rainwater accumulated in the excavation exceeded temporary on-site storage capacity. Rainwater runoff from other areas of the site exhibiting an oily sheen also accumulated in the UST excavation. The UST excavation was ultimately utilized as a holding basin for the accumulated rainwater until disposal could be arranged.

Operation and maintenance of the interceptor trench also became burdensome. Continuous dewatering activities were conducted to alleviate further migration of waste water and oil from the site. Several times, a significant amount of rainwater accumulated north of the interceptor trench near the Conrail tracks. As a precaution, water was pumped from the area and stored on-site for disposal. This continuous rainfall resulted in unanticipated disposal costs. Additional costs were incurred for the disposal of 256,500 gallons of waste water from the site, a majority of which included oily rainwater.

In addition, during the month of September, rain caused a delay in receipt of clean clay which was utilized to backfill the interceptor trench. The crew also encountered problems operating heavy equipment. Sloppy site conditions caused delays for initiating the backfill of the UST excavation and conducting a final grade of the site in preparation for demobilization. Throughout the removal action, an estimated four weeks was spent conducting water management activities at the site.

3.3 Disposal Coordination

Upon completing the disposal of the approximate 80,600 gallons of waste oil and 256,500 gallons of waste water, 8,141 gallons of waste sludge remained at the site. In September 1992, composite samples were collected and submitted to three separate disposal facilities for characterization and acceptance. Due to recurrent problems with ITEP's disposal coordinator, additional samples had to be collected and resubmitted to the disposal facilities for re-characterization. Additional samples were collected in October 1992, and disposal acceptance was finally received in November 1992, two months after demobilization. Unnecessary costs were incurred for rental equipment, support zone facilities, and on-site security due to prolonged disposal acceptance for the sludge waste stream. On-site security was maintained 24 hours daily to ensure a release did not occur as a result of vandalism at the site.

Crew members were mobilized to the site to complete disposal activities in December 1992. Disposal acceptance was granted from Clark Processing. The waste was transported by Metropolitan Transfer on December 2, 1992. Upon arriving at Clark Processing

in Dayton, Ohio, the waste stream was rejected by the facility. The facility stated the true consistency of the material was not represented accurately in the characterization samples. The waste was then shipped to an alternate disposal facility, Pollution Control Industries, located in East Chicago, Indiana. Additional unanticipated costs were again incurred for transportation of the waste from the Ohio facility to the Indiana facility. Upon completion of the disposal of the sludge waste stream, the removal action was completed.

3.4 Reclamation of Scrap Metal

Although approximately $5,179.08 was received for metal recycling efforts at the site, several problems were encountered throughout reclamation activities. The local scrap dealer failed to dedicate roll-off boxes on a regular basis for decontaminated metal. Decontaminated scrap metal accumulated on the western portion of the site which inhibited site progress and the use of heavy equipment. In addition, weight tickets were not supplied to U.S. EPA consistently with the shipment of metal off-site.

The OSC contacted the local scrap dealer throughout removal activities to request dedicated roll-off boxes and weight tickets for off-site shipments. A final load of scrap metal was shipped off-site on October 6, 1992. However, payment exceeding the sum of $700.00, for five loads of metal shipped off-site between July 13 and July 16, 1992, has not been received. The OSC has repeatedly attempted to contact the scrap dealer and subsequently referred the problem to the Inspector General.

3.5 Waste Oil Residual/Sludge Disposal

Several difficulties were encountered during the disposal of the waste oil. High pressure vacuum trucks had to be utilized to load and off-load the product. Upon completing waste oil disposal at American Waste, 8,141 gallons of waste oil sludge contained in the bottom of the temporary holding tank still remained at the site. Due to the thick consistency of the remaining material, American Waste was unable to treat the material for fuel recycling, and an alternate disposal facility had to be procured. Samples of the material were collected and submitted to five separate facilities for disposal acceptance. The material was transferred to the 20,000-gallon frac tank for storage, and all temporary holding tanks were decontaminated and shipped off-site for reclamation. On December 2, 1992, the waste oil was shipped to Pollution Control Industries in East Chicago, Indiana. The frac tank was decontaminated and demobilized on December 4, 1992.

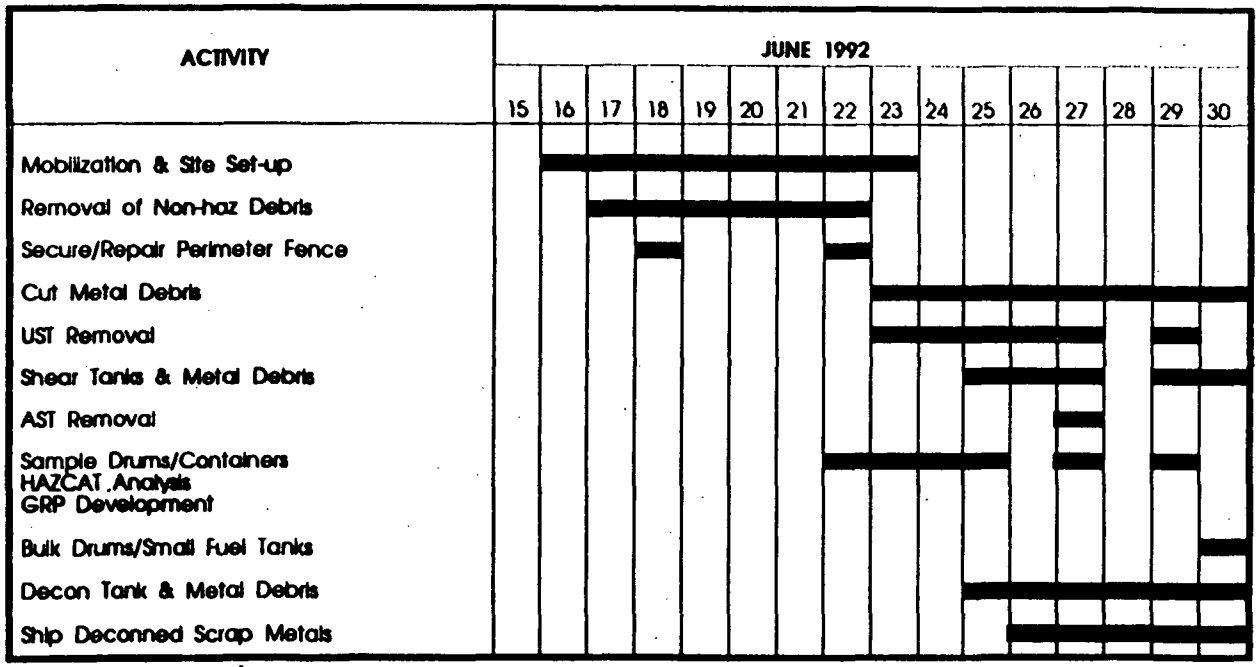
4.0 OSC RECOMMENDATIONS

A treatability study should be conducted to determine the feasibility of bioremediation as the preferred on-site treatment alternative for hydrocarbon contaminated soil. In addition, other alternative options should be explored in order to identify the most cost effective treatment and/or disposal alternative available.

ATTACHMENT A

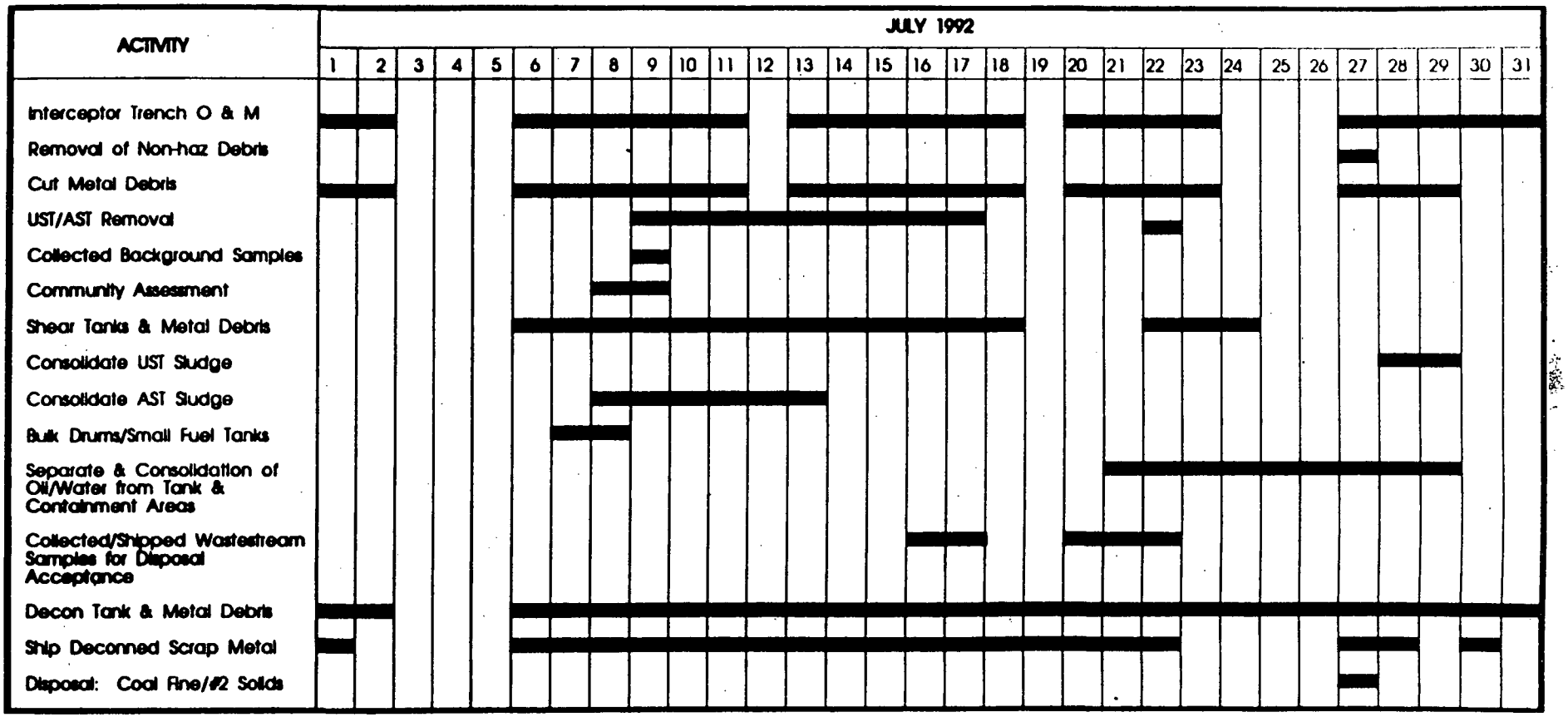
Attachment A

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
Detroit, Michigan



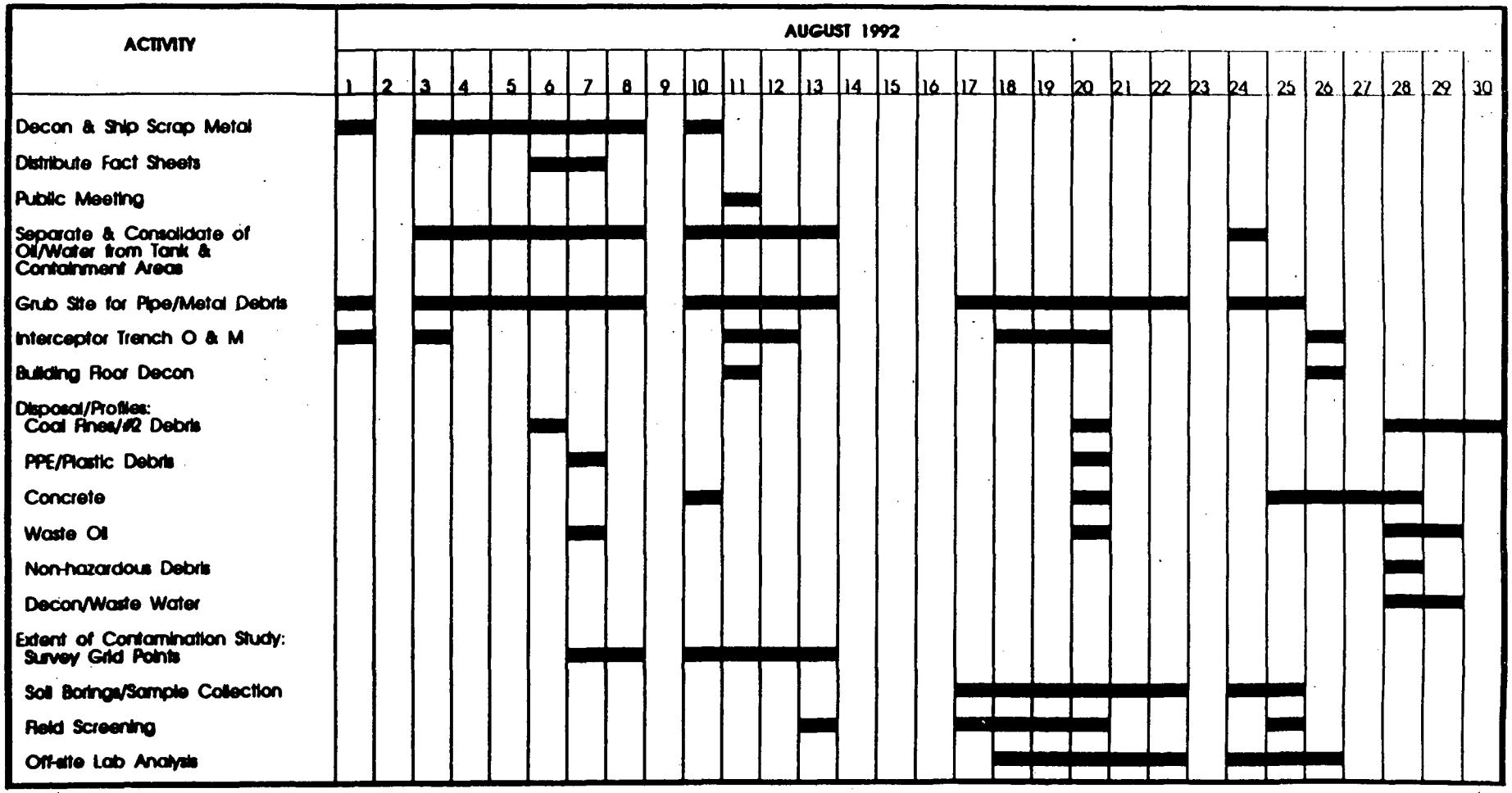
Attachment A (Cont.)

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
Detroit, Michigan



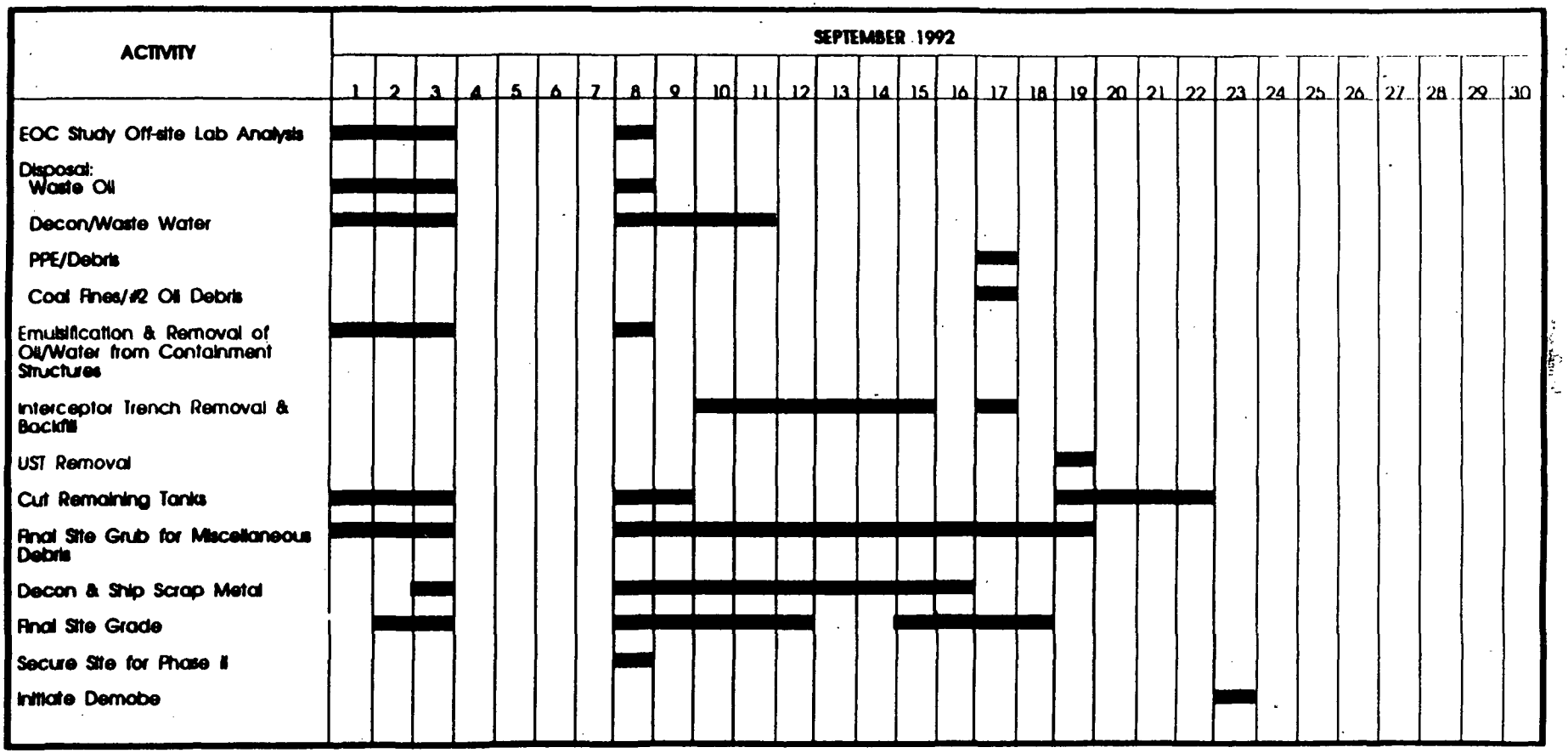
Attachment A (Cont.)

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
Detroit, Michigan



Attachment A (Cont.)

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
Detroit, Michigan



Attachment A (Cont.)

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
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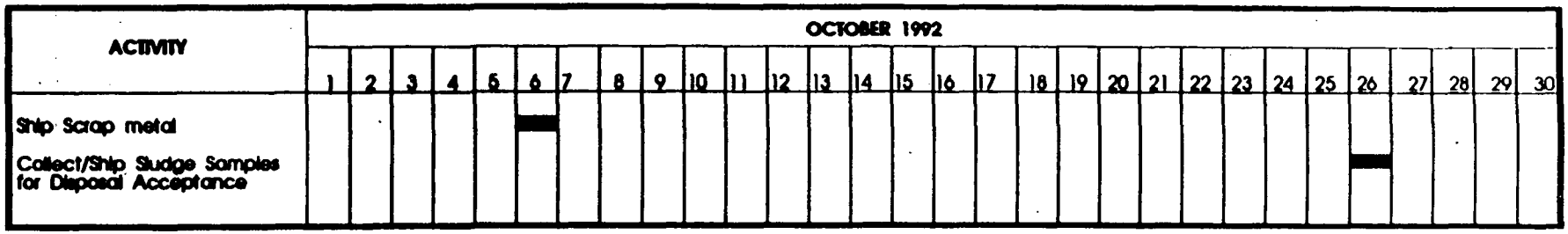

Attachment A (Cont.)

TIME LINE OF ON-SITE ACTIVITIES
Enterprise Oil Site
Detroit, Michigan

ACTIVITY	NOVEMBER - DECEMBER 1992																													
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Received Acceptance		▬																												
Shipped Sludge for Disposal																	▬													